Environment Canada
Environnement Canada

Environmental Conservation Service
du Service de la Conservation d'environnement

Inland Waters Directorate
Western and Northern Region

Direction générale des eaux intérieures
Région de l'Ouest et du Nord

SUMMARY OF WATER QUALITY DATA

FROM THE

ROCKY MOUNTAIN NATIONAL PARKS

(FOR 1982)

JULY 1985

PRESENTED TO: PARKS CANADA

BY: WATER QUALITY BRANCH

WQB-W&NR 85-04

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JULY 1985

PRESENTED TO: PARKS CANADA

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WESTERN AND NORTHERN
REGION

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I INTRODUCTION

Contained in this report are all data from joint studies undertaken by the Water Quality Branch, Inland Waters Directorate, Department of Environment and Parks Canada, Department of Environment in three Western Canada Rocky Mountain Parks during the period January 1982 to December 1982.

The data are presented in three sections, one for each of three parks included in the study. For ease in locating the results, the stations are presented in alphabetical order. The alphabetical index is presented on page three, together with the corresponding data processing number.

These data are stored in the computerized National Water Quality Data Bank (NAQUADAT) of the Water Quality Branch. Following are terms commonly used in the data output:

Data Processing Number - the twelve digit code assigned to each sampling site. The first two numerals of the code refer to the water type, followed by two letters which designate the province in which the site is located. The next two digits and two letters refer to the basin and sub-basin respectively, followed by a final four digit number.

Method Codes - the six digit code number shown at the top of each column to indicate the analytical method employed to determine that parameter. If the analytical method used was different from the one indicated on the headings, then the last three digits of the appropriate

method code appear beside the actual result. The last digit of the code indicates where the analytical determination was performed.

S in situ analysis
F field analysis
L laboratory analysis
P preserved in field; laboratory analysis
D filtered in field; laboratory analysis
R mean or median of laboratory analyzed replicates
G filtered and preserved in field; laboratory analysis
T mean or median of field filtered and preserved relicates; laboratory analyzed
U mean or median field analyzed replicates
V mean or median of field filtered replicates; laboratory analysis
W mean or median of field preserved replicates; laboratory or field analysis

Terms and Units - Several units are employed to express the results. The more common ones are: usie/cm This unit was formerly reported as umho/cm. As a result of the change to the metric system, the unit is now usie/cm (microsiemens/cm).

mg/l - milligrams per litre
ug/l - micrograms per litre
JTU - Jackson turbidity units
no/DL - number per 100 millitres
rel units - relative colour units
L - less than
Q - A "Q" preceding a result signifies that at least one of the values used in the computation of this result was reported as less than the detection limit. In the computation of calculated parameters, analytical values reported as "less than the detection limit" are interpreted as being equal to the numeric value of the detection limit.

INDEX OF STATIONS

BANFF NATIONAL PARK

Station	Data Processing Number
Bow River Basin:	
- Brewster Creek at Hwy. #1 near Mouth	00AL05BB0009
- Bow River approximately 4.5 km above Canmore	00AL05BE0013
- Bow River at Hwy. #1 above Lake Louise	00AL05BA0011
North Saskatchewan River Basin:	
- North Saskatchewan River at Whirlpool Point	00AL05DA0001
JASPER NATIONAL PARK	
- Athabasca River at Hwy. #93A, Athabasca Falls	00AL07AA0015
- Athabasca River at Hwy. #16 Bridge, below Confluence with Snaring River	00AL07AA0023
WATERTON LAKES NATIONAL PARK	
- Belly River at Hwy. #6	00AL05AD0060
- Waterton River at Hwy. #6 Bridge, near Waterton	00AL05AD0005

II

RESULTS FROM

BANFF NATIONAL PARK

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05BB0009 LAT 51D 9M 42S LONG 115D 40M 13S
BREWSTER CREEK AT HWY 1 NEAR MOUTH. BANFF NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP. WATER DEG C	02041F SPECIFIC CONDUCT. USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-13	0915	3	0	21 7	379	379	8 2	8 2	2	4
82-02-02	1520	3	0	21 1	380	374	8 3	8 2	3	1 6
82-03-23	1530	3	1 0	20 4	379	376	8 3	8 2	--	2
82-04-06	1400	3	1 0	20 8	390	379	8 3	8 2	--	5
82-05-04	1410	3	3 5	20 7	389	381	8 3	8 2	4	3
82-06-08	1200	3	5 0	20 8	282	261	8 2	8 2	6	5
82-07-06	1250	3	6 5	20 0	213	219	8 3	8 1	--	7
82-08-18	1230	3	7 5	18 7	295	272	8 4	8 2	L 1	3
82-09-14	1330	3	4 0	22 3	299	279	8 1	8 2	L 1	2 2
82-10-05	1250	3	2 5	17 0	319	295	8 2	8 2	5	5
82-11-03	1340	3	1 5	18 1	338	322	8 3	8 2	L 1	8
82-12-07	1500	3	0	18 0	359	334	8 2	8 2	L 1	6

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-13	0915	3	10	L 1	--	L 001	L 1	L 1	--	--
82-02-02	1520	3	5	1	-	L 001	L 1	L 1	-	--
82-03-23	1530	3	5	L 1	-	L 001	L 1	L 1	--	12 0
82-04-06	1400	3	5	L 1	--	L 001	L 1	L 1	--	11 4
82-05-04	1410	3	5	1	--	001	L 1	L 1	--	11 2
82-06-08	1200	3	5	1	-	L 001	L 1	L 1	-	11 0
82-07-06	1250	3	L5	1	--	L 001	1	1	-	10 8
82-08-18	1230	3	10	1	-	L 001	L 1	L 1	-	10 4
82-09-14	1330	3	5	3	--	L 001	L 1	L 1	-	10 8
82-10-05	1250	3	5	L 1	-	L 001	1	L 1	-	12 3
82-11-03	1340	3	5	1	-	L 001	L 1	L 1	--	13 1
82-12-07	1500	3	5	2	-	L 001	L 1	L 1	--	10 8

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06301L CARBONATE (CALCD) CO3 MG/L	10151 ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-13	0915	3	0	0	154	126 0	53 10	16 1	198 9	5
82-02-02	1520	3	0	0	152	125 0	53 60	16 7	203 6	6
82-03-23	1530	3	0	0	152	125 0	53 90	16 9	204 2	7
82-04-06	1400	3	0	0	152	125 0	55 20	16 7	206 6	5
82-05-04	1410	3	0	0	152	125 0	54 10	16 6	203 4	8
82-06-08	1200	3	0	0	140	115 0	37 80	11 4	141 3	5
82-07-06	1250	3	0	0	121	99 0	33 40	10 0	124 6	4
82-08-18	1230	3	0	0	140	115 0	42 20	12 5	156 8	5
82-09-14	1330	3	0	0	146	120 0	44 50	12 9	164 2	5
82-10-05	1250	3	0	0	146	120 0	43 60	14 9	170 2	5
82-11-03	1340	3	0	0	146	120 0	44 40	14 7	171 4	5
82-12-07	1500	3	0	0	156	128 0	51 10	15 6	191 8	5

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS ID	19103L POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604P CYANIDE DISSOLVED CN MG/L
82-01-13	0915	3	3	5	24	70	4 0	220	--	--
82-02-02	1520	3	4	5	22	68	4 2	219	-	-
82-03-23	1530	3	3	8	22	72	3 8	223	-	-
82-04-06	1400	3	3	5	16	74	3 6	226	--	--
82-05-04	1410	3	3	1 2	15	72	3 8	224	--	--
82-06-08	1200	3	3	4	15	24	3 6	147	--	--
82-07-06	1250	3	3	4	14	18	3 2	125	--	--
82-08-18	1230	3	3	3	17	33	3 4	161	--	--
82-09-14	1330	3	3	4	21	37	3 6	171	--	--
82-10-05	1250	3	3	5	29	44	3 6	179	--	--
82-11-03	1340	3	3	4	25	52	3 8	188	--	--
82-12-07	1500	3	3	5	20	62	4 1	211	--	--

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 0CALO5BB0009 LAT 51D 9M 42S LONG 115D 40M 13S
BREWSTER CREEK AT HWY 1 NEAR MOUTH. BANFF NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651I NITROGEN DISSOLVED N MG/L	07902I NITROGEN PARTICUL N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-13	0915	3	L 003	L 003	L 006	12	13	13	L 01	13
82-02-02	1520	3	006	005	L 006	13	14	14	L 01	14
82-03-23	1530	3	090	L 003	088	12	13	13	L 01	13
82-04-06	1400	3	027	L 003	025	12	12	12	L 01	12
82-05-04	1410	3	L 003	L 003	L 006	12	13	13	L 01	13
82-06-08	1200	3	004	L 003	L 006	09	11	11	L 01	11
82-07-06	1250	3	L 003	L 003	L 006	05	07	07	L 01	07
82-08-18	1230	3	L 003	L 003	L 006	07	09	11	L 01	11
82-09-14	1330	3	003	L 003	L 006	08	09	10	L 01	10
82-10-05	1250	3	L 003	L 003	L 006	09	10	10	L 01	10
82-11-03	1340	3	L 003	L 003	L 006	10	10	10	L 01	10
82-12-07	1500	3	L 003	L 003	L 006	11	12	12	L 01	12

DATE	TIME/	SUB-ID/	07506P NITROGEN TOTAL AMMONIA N	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P	06104L CARBON DISSOLVED ORGANIC C	06902L CARBON ORGANIC PARTICUL C	06002L CARBON TOTAL ORGANIC (CALCD.)	05105I BORON DISSOLVED	33104D ARSENIC DISSOLVED	34102D SELENIUM DISSOLVED
YMD/AMJ	HEURE	SOUS-ID	MG/L	MG/L	MG/L	MG/L	MG/L	B MG/L	AS MG/L	SE MG/L
82-01-13	0915	3	L 1	--	1 1	03	1 1	02 05D	L 0005	0007
82-02-02	1520	3	L 1	--	9	04	9	03 05D	L 0005	L 0005
82-03-23	1530	3	L 1	--	8	04	8	03 05D	L 0005	0008
82-04-06	1400	3	L 1	--	8	03	8	03 05D	L 0005	0009
82-05-04	1410	3	L 1	--	1 1	05	1 2	03 05D	L 0005	0008
82-06-08	1200	3	L 1	--	1 4	11	1 5	03 05D	L 0005	L 0005
82-07-06	1250	3	L 1	--	1 3	08	1 4	02 05D	L 0005	L 0005
82-08-18	1230	3	L 1	--	1 1	02	1 1	03 05D	L 0005	L 0005
82-09-14	1330	3	L 1	--	8	05	9	02 05D	L 0005	L 0005
82-10-05	1250	3	L 1	--	1 0	05	1 1	02 05D	L 0005	0006
82-11-03	1340	3	L 1	--	1 4	02	1 4	05 05D	L 0005	0007
82-12-07	1500	3	L 1	--	6	05	7	05 05D	L 0005	0008

DATE	TIME/	SUB-ID/	13302P ALUMINUM EXTRBLE AL	47301P SILVER EXTRBLE AG	25304P MANGANESE EXTRBLE MN	25104G MANGANESE DISSOLVED MN	26304P IRON EXTRBLE FE	26104G IRON DISSOLVED FE	80011P MERCURY TOTAL HG	23029P VANADIUM TOTAL RECOVERABLE VA
YMD/AMJ	HEURE	SOUS-ID	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	UG/L	MG/L
82-01-13	0915	3	-	--		L 01	-	L 04	L 02	--
82-02-02	1520	3		-	--	L 01	-	L 04	L 02	-
82-03-23	1530	3		--	--	L 01	-	L 04	L 02	-
82-04-06	1400	3	-	--	--	L 01	--	L 04	L 02	--
82-05-04	1410	3	--	-	--	L 01	--	L 04	L 02	--
82-06-08	1200	3		--	--	L 01	--	L 04	L 02	--
82-07-06	1250	3	-	--	--	L 01	--	L 04	L 02	--
82-08-18	1230	3	--	-	--	L 01	--	L 04	L 02	--
82-09-14	1330	3	--	-	--	L 01	--	L 04	04	--
82-10-05	1250	3	--	--	--	L 01	--	L 04	L 02	--
82-11-03	1340	3	--	--	--	L 01	--	L 04	L 02	--
82-12-07	1500	3	--	--	--	L 01	--	L 04	L 02	--

FOOTNOTE L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00ALOSBE0013 LAT 51D 7M 22S LONG 115D 23M 12S
BOW RIVER ABOUT 4 5 KM ABOVE CANMORE BELOW SE BOUNDARY OF BANFF NAT'L PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-13	1100	417	5	21 7	339	341	8 0	8 0	2	1 5
82-02-03	0900	417	0	21 0	351	340	8 0	8 0	--	5
82-03-24	0810	417	5	20 4	345	345	8 1	8 1	--	8
82-04-07	0900	417	0	21 0	355	334	8 2	8 0	--	6
82-05-05	0815	417	3 0	20 7	353	342	8 3	8 1	1 0	1 0
82-06-09	0840	417	5 0	21 3	245	234	8 2	8 1	1 8	8
82-07-07	0845	417	7 5	19 3	213	199	8 3	8 1	3 8	3 2
82-08-19	0840	417	8 5	18 7	239	221	8 3	8 1	2 7	2 5
82-09-15	0830	417	5 0	22 0	240	225	7 8	8 1	1 0	1 6
82-10-06	0845	417	2 5	17 5	272	250	8 0	8 1	6	1 0
82-11-04	0845	417	1 0	18 2	301	287	8 2	8 1	5	1 0
82-12-08	0815	417	0	15 5	333	298	8 1	8 0	2 0	1

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-13	1100	417	L5	4	--	001	160	12	2	11 7
82-02-03	0900	417	5	L1 018	--	L 001 171	840 020	6 120	8 031	-
82-03-24	0810	417	5	L1	--	L 001	58	6	2	12 2
82-04-07	0900	417	5	L1	--	001	4	2	L2	11 5
82-05-05	0815	417	5	3	--	001	22	L2	2	11 1
82-06-09	0840	417	5	2	--	001	38	10	4	10 4
82-07-07	0845	417	L5	16	-	L 001	440	4	L2	10 2
82-08-19	0840	417	-	1	--	001	3900	510	60	9 5
82-09-15	0830	417	5	1	-	001	24	L2	110	10 2
82-10-06	0845	417	5	2	--	L 001	4	L2	6	11 7
82-11-04	0845	417	5	2	-	001	122	L2	28	12 5
82-12-08	0815	417	5	8	-	L 001	90	4	14	9 7

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS ID	06301L CARBONATE (CALCD) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103I CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-13	1100	417	0	0	156	128 0	46 20	15 8	180 4	1 1
82-02-03	0900	417	0	0	159	130 0	45 50	16 4	181 1	1 1
82-03-24	0910	417	0	0	159	130 0	47 60	16 8	188 0	1 1
82-04-07	0900	417	0	0	152	125 0	46 20	15 8	180 4	1 1
82-05-05	0815	417	0	0	152	125 0	46 50	16 5	184 0	1 1
82-06-09	0840	417	0	0	122	100 0	31 90	11 1	125 4	1 1
82-07-07	0845	417	0	0	107	88 0	28 10	10 1	111 8	1
82-08-19	0840	417	0	0	117	96 0	31 00	11 2	123 5	1 1
82-09-15	0830	417	0	0	120	98 0	33 20	11 7	131 1	1 1
82-10-06	0845	417	0	0	128	105 0	35 00	12 7	139 7	1 1
82-11-04	0845	417	0	0	140	115 0	36 80	12 8	144 6	1 5
82-12-08	0815	417	0	0	151	124 0	42 00	14 7	165 4	2 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103L POTASSIUM DISSOLVED K MG/L	17206I CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD) MG/L	16104F SULFIDE DISSOLVED S MG/L	06804P CYANIDE DISSOLVED CN MG/L
82-01-13	1100	417	4	1 7	16	46	4 8	193	-	003
82-02-03	0900	417	5	1 7	11	47	4 5	195	-	L 001
82-03-24	0910	417	5	1 9	14	48	4 4	198	-	001
82-04-07	0900	417	4	1 7	08	48	4 1	193	-	002
82-05-05	0815	417	4	2 1	08	50	4 0	196	--	L 001
82-06-09	0840	417	4	9	08	24	3 7	133	-	L 001
82-07-07	0845	417	4	7	07	18	3 4	114	--	L 001
82-08-19	0840	417	3	8	08	23	3 1	126	--	L 001
82-09-15	0830	417	3	8	L 05	22	3 3	131	-	L 001
82-10-06	0845	417	4	1 1	08	30	3 6	147	-	004
82-11-04	0845	417	4	1 3	15	38	3 9	164	--	L 001
82-12-08	0815	417	4	1 6	12	40	4 6	180	--	L 001

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05BE0013 LAT 51D 7M 22S LONG 115D 23M 12S
BOW RIVER ABOUT 4.5 KM ABOVE CANMORE BELOW SE BOUNDARY OF BANFF NAT'L PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL. N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-13	1100	417	020	011	009	12	18	17	L 01	17
82-02-03	0900	417	016 06R	015 03V	L 006 01R	14 10V	20 51V	18 51R	L 01 02R	--
82-03-24	0910	417	026	021	L 006	12	16	18	L 01	18
82-04-07	0900	417	027	015	012	12	18	17	L 01	17
82-05-05	0915	417	019	010	009	10	15	15	L 01	15
82-06-09	0840	417	008	L 003	006	07	09	10	L 01	10
82-07-07	0845	417	007	L 003	005	05	07	10	L 01	10
82-08-19	0840	417	012	006	006	05	07	07	03	10
82-09-15	0830	417	009	003	006	06	07	08	L 01	08
82-10-06	0845	417	011	010	L 006	06	08	08	L 01	08
82-11-04	0845	417	011	009	L 006	09	10	10	L 01	10
82-12-08	0915	417	017	013	L 006	12	14	14	L 01	14

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL. C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) C MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-13	1100	417	L 1	--	9	41	1.3	03 05D	L 0005	L 0005
82-02-03	0900	417	L 1 06H	--	1 0 04R	12 02R	1 1	05 05V	L 0005 04V	L 0005 02V
82-03-24	0910	417	1	--	1 0	10	1.2	03 05D	L 0005	0006
82-04-07	0900	417	L 1	--	9	17	1 1	04 05D	L 0005	L 0005
82-05-05	0915	417	L 1	--	1 7	22	1 9	03 05D	L 0005	L 0005
82-06-09	0840	417	L 1	--	1 3	20	1 5	05 05D	L 0005	L 0005
82-07-07	0845	417	L 1	--	1 2	39	1 6	03 05D	L 0005	L 0005
82-08-19	0840	417	L 1	--	1 0	25	1 3	04 05D	L 0005	L 0005
82-09-15	0830	417	L 1	--	8	23	1 0	L 02 05D	L 0005	L 0005
82-10-06	0845	417	L 1	--	9	21	1 1	03 05D	L 0005	L 0005
82-11-04	0845	417	L 1	--	1 7	08	1 8	04 05D	L 0005	L 0005
82-12-08	0915	417	L 1	--	5	13	6	05 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-13	1100	417	--	--	--	L 01	-	L 04	L 02	L 001
82-02-03	0900	417	--	--	-	L 01 041	-	L 04 04T	L 02 11H	L 001 20W
82-03-24	0910	417	--	--	--	L 01	-	L 04	L 02	L 001
82-04-07	0900	417	--	--	--	L 01	-	04	L 02	L 001
82-05-05	0915	417	--	--	--	L 01	-	L 04	L 02	L 001
82-06-09	0840	417	--	-	--	L 01	-	L 04	L 02	L 001
82-07-07	0845	417	--	--	-	L 01	-	L 04	L 02	L 001
82-08-19	0840	417	--	--	--	L 01	-	L 04	L 02	L 001
82-09-15	0830	417	-	-	--	L 01	--	L 04	L 02	L 001
82-10-06	0845	417	-	--	--	L 01	--	L 04	L 02	L 001
82-11-04	0845	417	--	--	--	L 01	--	L 04	L 02	L 001
82-12-08	0915	417	--	--	--	L 01	-	L 04	L 02	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	24302P CHROMIUM EXTRBLE CR MG/L	27020P COBALT TOTAL RECOVERABLE CO MG/L	28020P NICKEL TOTAL RECOVERABLE NI MG/L	29020P COPPER TOTAL RECOVERABLE CU MG/L	30020P ZINC TOTAL RECOVERABLE ZN MG/L	48020P CADMIUM TOTAL RECOVERABLE CD MG/L	56020P BARIUM TOTAL RECOVERABLE BA MG/L	82020P LEAD TOTAL RECOVERABLE PB MG/L
82-01-13	1100	417	--	L 002	003	L 001	007	L 001	L 05	L 004
82-02-03	0900	417	--	-	L 002 20W	-	-	L 001 20W	L 05 20W	L 004 20W
82-03-24	0910	417	--	L 002	L 002	L 001	005	L 001	L 05	L 004
82-04-07	0900	417	-	L 002	L 002	002	L 001	L 001	L 05	L 004
82-05-05	0915	417	--	L 002	L 002	L 001	001	L 001	L 05	L 004
82-06-09	0840	417	--	L 002	L 002	001	009	L 001	L 05	L 004
82-07-07	0845	417	--	L 002	L 002	L 001	004	L 001	L 05	L 004
82-08-19	0840	417	--	L 002	002	L 001	004	L 001	L 05	L 004
82-09-15	0830	417	--	L 002	013	L 001	004	L 001	L 05	L 004
82-10-06	0845	417	--	L 002	--			L 001	L 05	L 004
82-11-04	0845	417	--	L 002	L 002	001	004	L 001	L 05	L 004
82-12-08	0915	417	--	L 002	L 002	L 001	001	L 001	L 05	L 004

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05BE0013 LAT 51D 7M 22S LONG - 115D 23M 12S
BOW RIVER ABOUT 4 5 KM ABOVE CANMORE BELOW SE BOUNDARY OF BANFF NAT'L PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06535P PHENOLIC MATERIAL PHENOL MG/L	06500P N-ALKANES C10 - C26 UG/L	06510P AROMATIC HYDROC UG/L	17811L HEXACHLORO-BENZENE UG/L	18075L ALPHA-BHC UG/L	18070L GAMMA-BHC (LINDANE) UG/L	18130L ALDRIN UG/L	18010L P,P-TDE UG/L
82-01-13	1100	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-02-03	0900	417	L 001 35W	--	--	L 001 11R	L 001 75R	L 001 70R	L 001 30R	L 002 10R
82-03-24	0810	417	001	--	--	L 001	L 001	L 001	L 001	L 002
82-04-07	0900	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-05-05	0915	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-06-09	0840	417	L 001	--	--	L 001	001	L 001	L 001	L 002
82-07-07	0845	417	001	--	--	L 001	001	L 001	L 001	L 002
82-08-19	0840	417	L 001	--	--	L 001	001	L 001	L 001	L 002
82-09-15	0830	417	L 001	--	--	L 001	002	L 001	L 001	L 002
82-10-06	0845	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-11-04	0845	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-12-08	0915	417	001	--	--	L 001	L 001	L 001	L 001	L 002

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18020L P,P-DDE UG/L	18005L O,P-DDT UG/L	18000L P,P-DDT UG/L	18030L P,P-METHOXY-CHLOR UG/L	18140L ENDRIN UG/L	18050L ALPHA-ENDOSULFAN UG/L	18055L BETA-ENDOSULFAN UG/L	18040L HEPTACHLOR UG/L
82-01-13	1100	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-02-03	0900	417	L 001 20R	L 001 05R	L 004 00R	L 01 30R	L 0020 40R	L 001 50R	L 003 55R	L 001 40R
82-03-24	0810	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-04-07	0900	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-05-05	0915	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-06-09	0840	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-07-07	0845	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-08-19	0840	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-09-15	0830	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-10-06	0845	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-11-04	0845	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-12-08	0915	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18045L HEPTACHLOR EPOXIDE UG/L	18150L HEOD (DIELDRIN) UG/L	18125L MIREX UG/L	18060L ALPHA-(CIS) CHLORDANE UG/L	18065L GAMMA-(TRANS) CHLORDANE UG/L	18520P MCPA UG/L	18500P 2,4-D UG/L	18550P 2,4-DB UG/L
82-01-13	1100	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-02-03	0900	417	L 002 45R	L 0020 50R	L 001 25R	L 003 60R	L 002 65R	L 2 20R	L 004 00R	L 009 50R
82-03-24	0810	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-04-07	0900	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-05-05	0915	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-06-09	0840	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-07-07	0845	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-08-19	0840	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-09-15	0830	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-10-06	0845	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-11-04	0845	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-12-08	0915	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18555P DICHLORPROP UG/L	18510P 2,4,5-T UG/L	18540P FENOPROP (SILVEX) UG/L	18601P PICLORAM UG/L	18159L AROCLOR 1242 (PCB'S) UG/L	18160L AROCLOR 1254 (PCB'S) UG/L	18162L AROCLOR 1260 (PCB'S) UG/L	18164L AROCLOR TOTAL (PCB'S) UG/L
82-01-13	1100	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-02-03	0900	417	L 004 55W	L 002 10W	L 004 40W	L 2 01W	L 002 59R	L 002 60R	L 005 62R	L 002 64R
82-03-24	0810	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-04-07	0900	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-05-05	0915	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-06-09	0840	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-07-07	0845	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-08-19	0840	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-09-15	0830	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-10-06	0845	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-11-04	0845	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-12-08	0915	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002

FOOTNOTE L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN: L - PLUS PETIT QUE LA LIMITE DE DETECTION G PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05BA0011 LAT 51D 26M 35S LONG 116D 12M 42S
BOW RIVER AT HIGHWAY 1 ABOVE LAKE LOUISE ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061I TEMP. WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT. USIE/CM	02041L SPECIFIC CONDUCT. USIE/CM	10301I PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-12	1520	417	0	17 6	178	171	8 0	8 0	L 1	6
82-02-02	1345	417	0	21 0	179	176	8 1	8 0	L 1	3
82-03-23	1345	417	0	20 5	181	180	8 1	8 0	-	5
82-04-06	1215	417	5	20 8	188	184	8 1	8 0	--	3
82-05-04	1245	417	5	20 5	196	196	8 2	8 0	7	5
82-06-08	1045	417	4 0	20 7	156	140	8 1	8 1	7	6
82-07-06	1120	417	9 0	20 2	150	133	8 3	8 1	3 6	3 3
82-08-18	1045	417	9 5	19 0	155	146	8 2	8 1	3 4	3 3
82-09-14	1120	417	5 0	22 0	152	143	7 7	8 1	5 2	5 0
82-10-04	1115	417	2 5	16 7	159	148	8 0	8 1	2 0	3 0
82-11-03	1200	417	0	18 2	165	157	8 0	8 0	7	1 0
82-12-07	1300	417	0	18 0	178	173	8 0	8 0	4	1 5

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR. MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002I COLIFORMS TOTAL MF NO/DL	36012I COLIFORMS FECAL MF NO/DL	36103I FECAL STREP. MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-12	1520	417	5	L1	--	001	1	L1	L1	12 2
82-02-02	1345	417	5	L1	--	L 001	L1	L1	L1	-
82-03-23	1345	417	5	L1	-	L 001	L1	L1	L1	12 4
82-04-06	1215	417	5	L1	-	L 001	L1	L1	L1	11 5
82-05-04	1245	417	5	1	-	L 001	L1	L1	L1	11 8
82-06-08	1045	417	5	1	-	001	L1	L1	L1	10 8
82-07-06	1120	417	15	2	-	001	L1	L1	L1	9 8
82-08-18	1045	417	-	1 01R	--	001 171	2 020	1 120	23 030	9 4
82-09-14	1120	417	5	1	--	L 001	L1	L1	7	10 4
82-10-04	1115	417	5	3	--	004	2	2	7	11 9
82-11-03	1200	417	5	L1	--	001	L1	L1	L1	13 2
82-12-07	1300	417	5	L1	-	L 001	L1	L1	6	10 4

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS ID	06301I CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD.) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20102I CALCIUM DISSOLVED CA MG/L	12102I MAGNESIUM DISSOLVED MG MG/L	10602I HARDNESS TOTAL (CALCD.) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-12	1520	417	0	0	102	84 0	23 70	9 1	96 6	6
82-02-02	1345	417	0	0	99	81 0	23 10	9 4	96 4	6
82-03-23	1345	417	0	0	101	83 0	22 20	9 5	94 5	7
82-04-06	1215	417	0	0	104	85 0	23 80	9 3	97 7	5
82-05-04	1245	417	0	0	111	91 0	24 80	10 0	103 1	9
82-06-08	1045	417	0	0	87	71 0	19 90	7 8	81 8	7
82-07-06	1120	417	0	0	81	66 0	18 20	7 8	77 6	8
82-08-18	1045	417	0	0	83	68 0	19 00	8 0	80 4	5
82-09-14	1120	417	0	0	85	70 0	21 30	7 9	85 7	5
82-10-04	1115	417	0	0	87	71 0	20 00	7 5	80 8	5
82-11-03	1200	417	0	0	94	77 0	19 50	7 7	80 4	5
82-12-07	1300	417	0	0	101	83 0	22 90	9 0	94 2	1 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS ID	19103I POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD.) MG/L	16104P SULFIDE DISSOLVED S MG/L	08604P CYANIDE DISSOLVED CN MG/L
82-01-12	1520	417	2	3	07	10	2 9	97	--	--
82-02-02	1345	417	2	3	L 05	11	2 8	96	-	-
82-03-23	1345	417	2	3	L 05	12	2 8	98	-	-
82-04-06	1215	417	2	3	L 05	12	2 6	100	-	-
82-05-04	1245	417	3	7	L 05	10	3 4	105	--	-
82-06-08	1045	417	2	3	L 05	8	2 6	82	--	--
82-07-06	1120	417	3	4	L 05	8	2 3	77	--	--
82-08-18	1045	417	2	3	L 05	8	2 2	79	--	--
82-09-14	1120	417	2	3	L 05	8	2 2	82	--	--
82-10-04	1115	417	3	3	L 05	8	2 5	82	-	-
82-11-03	1200	417	2	3	05	9	2 7	86	--	--
82-12-07	1300	417	2	3	L 05	10	3 0	96	--	--

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - OCAL05BA0011
BOW RIVER AT HIGHWAY 1 ABOVE LAKE LOUISE, ALBERTA LAT 51D 28M 35S LONG 116D 12M 42S

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL. N MG/L	07603I NITROGEN TOTAL (CALCD.) N MG/L
82-01-12	1520	417	L 003	L 003	L 006	09	09	10	L 01	10
82-02-02	1345	417	L 003	L 003	L 006	08	09	09	L 01	09
82-03-23	1345	417	L 003	L 003	L 006	09	09	09	L 01	09
82-04-06	1215	417	L 003	L 003	L 006	09	09	09	L 01	09
82-05-04	1245	417	L 003	L 003	L 006	08	10	12	L 01	12
82-06-08	1045	417	020	L 003	018	06	08	08	L 01	08
82-07-06	1120	417	L 003	L 003	L 006	04	06	07	L 01	07
82-08-18	1045	417	L 003 06R	L 003 03V	L 006 01R	04 10V	--	05 51R	L 01 02R	--
82-09-14	1120	417	L 003	L 003	L 006	05	05	06	L 01	06
82-10-04	1115	417	009	L 003	007	05	07	07	L 01	07
82-11-03	1200	417	003	L 003	L 006	06	07	07	L 01	07
82-12-07	1300	417	L 003	L 003	L 006	07	08	08	L 01	08

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104I CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-12	1520	417	L 1	--	6	03	6	05 05D	L 0005	L 0005
82-02-02	1345	417	L 1	--	7	03	7	02 05D	L 0005	L 0005
82-03-23	1345	417	L 1	--	7	04	7	03 05D	L 0005	L 0005
82-04-06	1215	417	L 1	--	8	02	8	02 05D	L 0005	L 0005
82-05-04	1245	417	L 1	--	1 6	08	1 7	03 05D	L 0005	L 0005
82-06-08	1045	417	L 1	--	1 2	10	1 3	02 05D	L 0005	L 0005
82-07-06	1120	417	L 1	--	9	19	1 1	02 05D	L 0005	L 0005
82-08-18	1045	417	L 1 06H	--	1 0 04V	15 02R	1 2	03 05V	L 0005 04V	L 0005 02V
82-09-14	1120	417	L 1	--	8	21	1 0	L 02 05D	L 0005	L 0005
82-10-04	1115	417	L 1	--	9	09	1 0	L 02 05D	L 0005	L 0005
82-11-03	1200	417	L 1	--	1 5	04	1 5	04 05D	L 0005	L 0005
82-12-07	1300	417	L 1	--	5	12	6	05 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25104P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-12	1520	417				L 01	-	L 04	L 02	
82-02-02	1345	417				L 01	-	L 04	L 02	-
82-03-23	1345	417				L 01	--	L 04	L 02	-
82-04-06	1215	417		-	--	L 01	--	L 04	L 02	--
82-05-04	1245	417				01	--	L 04	L 02	--
82-06-08	1045	417			-	L 01	-	L 04	L 02	-
82-07-06	1120	417		--	--	L 01	--	L 04	L 02	-
82-08-18	1045	417		-	-	L 01 041	--	L 04 041	L 02 11H	
82-09-14	1120	417			--	L 01	-	L 04	02	-
82-10-04	1115	417	--		--	L 01	--	L 04	L 02	-
82-11-03	1200	417		--	--	L 01	--	L 04	L 02	-
82-12-07	1300	417		--	--	01	-	L 04	L 02	-

FOOTNOTE L LESS THAN DETECTION LIMIT G GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN I PLUS PETIT QUE LA LIMITE DE DETECTION G PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION 00AL05BA0001 LAT 52D 0M 10S LONG 118D 28M 18S
NORTH SASKATCHEWAN RIVER AT WHIRLPOOL POINT, ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15991L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL. N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-12	1215	417	L 003	L 003	L 006	11	13	11	L 01	13
82-02-02	1040	417	L 003	L 003	L 006	11	11	13	L 01	11
82-03-23	1100	417	005	L 003	L 006	11	11	11	L 01	11
82-04-06	1015	417	003	L 003	L 006	11	11	10	L 01	11
82-05-04	1020	417	003	L 003	L 006	09	09	09	L 01	09
82-06-08	0845	417	008	L 003	L 006	10	11	11	L 01	11
82-07-06	0915	417	027	003	024	06	07	08	L 01	08
82-08-18	0845	417	030	L 003	028	05	06	07	L 01	07
82-09-14	0915	417	016	L 003	014	07	06	--	L 01	Q 07
82-10-06	0920	417	005	L 003	L 006	07	07	07	L 01	07
82-11-03	1015	417	L 003	L 003	L 006	09	09	09	L 01	09
82-12-07	1045	417	003	L 003	L 006	10	11	10	L 01	10

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL. C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-12	1215	417	L 1	--	6	06	7	03 05D	L 0005	L 0005
82-02-02	1040	417	L 1	--	8	01	8	04 05D	L 0005	L 0005
82-03-23	1100	417	L 1	--	6	05	7	03 05D	L 0005	L 0005
82-04-06	1015	417	L 1	--	7	02	7	03 05D	L 0005	L 0005
82-05-04	1020	417	L 1	--	7	17	9	02 05D	L 0005	L 0005
82-06-08	0845	417	L 1	--	1 0	23	1 2	02 05D	L 0005	L 0005
82-07-06	0915	417	L 1	--	9	2 00	2 9	02 05D	L 0005	L 0005
82-08-18	0845	417	L 1	-	8	2 50	3 3	03 05D	L 0005	L 0005
82-09-14	0915	417	L 1	--	1 0	1 00	2 0	L 02 05D	L 0005	L 0005
82-10-06	0920	417	L 1	--	6	26	9	L 02 05D	L 0005	L 0005
82-11-03	1015	417	L 1	--	1 3	05	1 4	06 05D	L 0005	L 0005
82-12-07	1045	417	L 1	--	3	45	8	06 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23070P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-12	1215	417	--	--	-	L 01	--	L 04	02	
82-02-02	1040	417	--	--	-	L 01	--	L 04	03	
82-03-23	1100	417	-	--	-	L 01	--	L 04	L 02	--
82-04-06	1015	417	--	-	--	L 01	--	L 04	L 02	--
82-05-04	1020	417	--	-		L 01		L 04	L 02	--
82-06-08	0845	417	-	--	--	L 01	--	L 04	L 02	--
82-07-06	0915	417	--	-	-	L 01	--	L 04	L 02	--
82-08-18	0845	417	--	--	-	L 01	--	L 04	L 02	-
82-09-14	0915	417	--	-	--	L 01	--	L 04	L 02	-
82-10-06	0920	417	-	--	--	L 01	--	L 04	L 02	-
82-11-03	1015	417	--	--	-	L 01	--	L 04	L 02	--
82-12-07	1045	417	--	--	-	L 01	--	L 04	L 02	--

FOOTNOTE L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTE? BIEN L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 08AL058AC001 LAT 52D 0M 10S LONG 116D 28M 18S
NORTH SASKATCHEWAN RIVER AT WHIRLPOOL POINT, ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-12	1215	417	0	16 8	292	299	8 0	8 1	2	1 1
82-02-02	1040	417	0	21 0	291	285	8 1	8 0	4	6
82-03-23	1100	417	5	20 5	299	293	8 2	8 1	-	6
82-04-06	1015	417	0	20 8	294	291	8 2	8 1	--	1 0
82-05-04	1020	417	0	20 6	270	268	8 2	8 1	6 0	4 4
82-06-08	0845	417	6 0	22 7	278	214	8 3	8 2	8 2	6 5
82-07-06	0915	417	7 0	20 7	170	153	8 2	8 1	60 0	44 0
82-08-18	0845	417	6 5	17 9	163	154	8 3	8 2	-	38 0
82-09-14	0915	417	3 0	22 0	182	170	7 7	8 1	19 0	20 0
82-10-05	0920	417	1 5	17 1	219	212	7 9	8 1	4 0	5 0
82-11-03	1015	417	0	18 0	264	242	8 1	8 0	1 8	1 8
82-12-07	1045	417	0	18 3	282	263	8 0	8 0	1 6	2 8

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR. MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-12	1215	417	5	L1	--	L 001	1	L1	L1	11 6
82-02-02	1040	417	5	L1	--	L 001	L1	L1	L1	-
82-03-23	1100	417	5	2	--	L 001	L1	L1	L1	12 2
82-04-06	1015	417	5	L1	--	001	L1	L1	L1	11 8
82-05-04	1020	417	5	6	--	L 001	L1	L1	L1	11 9
82-06-08	0845	417	5	9	--	L 001	2	L1	1	10 3
82-07-06	0915	417	L5	61	--	L 001	10	2	2	10 4
82-08-18	0845	417	10	74	--	001	L2	L2	10	10 4
82-09-14	0915	417	5	20	--	001	L1	L1	9	11 0
82-10-05	0920	417	5	5	-	L 001	1	1	1	11 8
82-11-03	1015	417	5	1	-	001	L1	L1	11	13 2
82-12-07	1045	417	5	L1	--	001	2	L1	9	10 5

DATE YMD/AMJ	TIME/ HEURE	SUB ID/ SOUS-ID	06301L CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-12	1215	417	0	0	135	111 0	37 80	15 2	157 0	1 0
82-02-02	1040	417	0	0	134	110 0	37 10	15 7	157 3	1 0
82-03-23	1100	417	0	0	134	110 0	36 10	15 1	152 3	1 0
82-04-06	1015	417	0	0	134	110 0	37 20	15 1	155 1	1 0
82-05-04	1020	417	0	0	118	97 0	34 00	13 7	141 3	9
82-06-08	0845	417	0	0	115	94 0	30 40	10 1	117 5	9
82-07-06	0915	417	0	0	90	74 0	23 60	7 1	88 2	6
82-08-18	0845	417	0	0	83	68 0	24 20	6 9	86 3	6
82-09-14	0915	417	0	0	94	77 0	25 80	7 9	96 9	5
82-10-05	0920	417	0	0	101	83 0	30 00	9 6	114 4	6
82-11-03	1015	417	0	0	122	100 0	31 10	11 6	125 4	1 0
82-12-07	1045	417	0	0	126	103 0	35 50	14 3	147 5	1 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103L POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD.) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604P CYANIDE DISSOLVED CN MG/L
82-01-12	1215	417	4	.5	09	40	3 9	165	--	--
82-02-02	1040	417	4	5	05	40	3 8	165	--	-
82-03-23	1100	417	4	5	06	40	3 8	163	--	--
82-04-06	1015	417	.3	5	L 05	40	3 6	164	--	--
82-05-04	1020	417	3	5	L 05	40	2 3	150	--	--
82-06-08	0845	417	3	3	L 05	22	3 1	124	--	--
82-07-06	0915	417	3	2	07	13	2 2	91	--	--
82-08-18	0845	417	2	3	05	13	1 8	87	--	--
82-09-14	0915	417	.2	3	L 05	17	2 2	100	--	-
82-10-05	0920	417	3	5	L 05	22	2 7	115		-
82-11-03	1015	417	.3	4	10	33	3 4	141	--	--
82-12-07	1045	417	.3	.5	L 05	39	3 8	156	--	--

III

RESULTS FROM

JASPER NATIONAL PARK

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL07AA0015
ATHABASCA RIVER AT HWY 93A. ATHABASCA FALLS. LAT 52D 39M 51S LONG 117D 52M 50S
JASPER NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP. WATER DEG C	02041F SPECIFIC CONDUCT USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-12	0920	417	0	17 1	206	209	8 1	8 0	1	3 2
82-02-01	1335	417	0	21 0	207	205	8 2	8 0	1 2	3 8
82-03-22	1330	417	1 5	20 5	218	213	8 0	8 0	--	1 9
82-04-05	1300	417	1 5	20 8	218	214	8 1	8 1	--	1 9
82-05-03	1240	417	3 0	20 6	191	207	8 1	8 0	8 0	8 3
82-06-07	1230	417	5 0	24 1	155	164	8 1	8 1	15 0	14 0
82-07-05	1230	417	6 0	20 7	146	130	8 3	8 1	90 0	58 0
82-08-17	1215	417	8 5	17 7	152	139	8 3	8 2	--	24 0
82-09-13	1300	417	5 0	21 5	155	150	7 9	8 1	20 0	20 0
82-10-04	1245	417	3 5	16 9	174	162	8 0	8 1	3 0	5 0
82-11-02	1230	417	5	18 6	197	182	8 0	8 0	3 4	3 5
82-12-06	1315	417	0	15 5	206	189	8 0	8 1	--	2 8

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101M OXYGEN DISSOLVED DO O2 MG/L
82-01-12	0920	417	5	2	--	L 001	L1	L1	L1	12 0
82-02-01	1335	417	5	15	-	L 001	L1	L1	L1	-
82-03-22	1330	417	5	2	--	L 001	L1	L1	L1	12 4
82-04-05	1300	417	5	1	-	L 001	L1	L1	L1	11 7
82-05-03	1240	417	5	11	--	L 001	L1	L1	2	11 9
82-06-07	1230	417	10	16	--	L 001	L1	L1	1	11 0
82-07-05	1230	417	L5	97	-	L 001	26	4	6	11 2
82-08-17	1215	417	20	33	-	L 001	8	L2	10	10 2
82-09-13	1300	417	10	14	--	001	17	L1	14	10 9
82-10-04	1245	417	10	3	--	L 001	5	L1	15	10 9
82-11-02	1230	417	5	3	-	L 001	L1	L1	1	13 6
82-12-06	1315	417	5	7	-	L 001	L1	L1	L1	10 9

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06301L CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT. (CALCD.) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD.) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-12	0920	417	0	0	105	86 0	27 30	4 7	108 1	8
82-02-01	1335	417	0	0	105	86 0	27 40	10 0	109 6	1 0
82-03-22	1330	417	0	0	110	90 0	27 80	9 9	110 2	1 0
82-04-05	1300	417	0	0	110	90 0	29 00	9 7	112 4	9
82-05-03	1240	417	0	0	99	81 0	25 60	9 1	101 4	7
82-06-07	1230	417	0	0	85	70 0	21 90	7 0	83 5	9
82-07-05	1230	417	0	0	82	67 0	21 10	5 8	76 6	6
82-08-17	1215	417	0	0	79	65 0	21 40	6 3	79 4	6
82-09-13	1300	417	0	0	88	72 0	23 20	6 6	85 1	5
82-10-04	1245	417	0	0	87	71 0	23 00	7 4	87 9	6
82-11-02	1230	417	0	0	102	84 0	26 50	9 0	103 2	1 0
82-12-06	1315	417	0	0	104	85 0	26 50	9 5	105 3	1 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103L POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD.) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604P CYANIDE DISSOLVED CN MG/L
82-01-12	0920	417	3	3	08	19	4 3	113	-	-
82-02-01	1335	417	.4	3	07	20	4 0	115	-	-
82-03-22	1330	417	3	4	05	20	4 2	118	--	-
82-04-05	1300	417	3	4	05	20	4 0	118	--	-
82-05-03	1240	417	3	5	05	16	3 7	105	--	-
82-06-07	1230	417	3	3	05	12	3 4	88	--	--
82-07-05	1230	417	3	3	07	8	3 0	80	-	--
82-08-17	1215	417	.2	.2	07	11	2 3	81	--	--
82-09-13	1300	417	3	.3	L 05	12	2 8	89	--	--
82-10-04	1245	417	3	3	L 05	14	3 2	91	-	-
82-11-02	1230	417	3	.3	10	18	3 7	109	--	--
82-12-06	1315	417	.3	.4	06	24	4 2	117	--	--

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION 00AL07AA0015
ATHABASCA RIVER AT HWY 93A ATHABASCA FALLS LAT 52D 39M 51S LONG 117D 52M 50S
JASPER NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651I NITROGEN DISSOLVED N MG/L	07902I NITROGEN PARTICUL N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-12	0820	417	L 003	L 003	L 006	11	11	13	L 01	13
82-02-01	1335	417	007	L 003	L 006	11	11	11	L 01	11
82-03-22	1330	417	L 003	L 003	L 006	11	10	10	L 01	10
82-04-05	1300	417	009	006	L 006	10	10	11	L 01	11
82-05-03	1240	417	006	003	L 006	08	09	10	L 01	10
82-06-07	1230	417	018	L 003	016	10	12	11	L 01	11
82-07-05	1230	417	130	L 003	130	05	07	08	L 01	08
82-08-17	1215	417	025	L 003	023	05	05	09	L 01	09
82-09-13	1300	417	013	L 003	011	05	05	07	L 01	07
82-10-04	1245	417	009	L 003	007	06	07	06	L 01	06
82-11-02	1230	417	006	L 003	L 006	08	09	09	L 01	09
82-12-06	1315	417	003	L 003	L 006	10	10	10	L 01	10

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL. C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) MG/L	05105I BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-12	0820	417	L 1	--	5	11	6	03 05D	L 0005	L 0005
82-02-01	1335	417	L 1	--	5	38	9	03 05D	L 0005	L 0005
82-03-22	1330	417	L 1	--	6	09	7	02 05D	L 0005	L 0005
82-04-05	1300	417	L 1	--	6	09	7	03 05D	L 0005	L 0005
82-05-03	1240	417	L 1	--	1 6	28	1 9	03 05D	L 0005	L 0005
82-06-07	1230	417	L 1	-	1 5	66	2 2	04 05D	L 0005	L 0005
82-07-05	1230	417	L 1	--	1 7	4 40	5 6	01 05D	L 0005	L 0005
82-08-17	1215	417	L 1	--	6	2 00	2 6	02 05D	L 0005	L 0005
82-09-13	1300	417	L 1		8	79	1 6	L 02 05D	L 0005	L 0005
82-10-04	1245	417	L 1	--	7	21	9	02 05D	L 0005	L 0005
82-11-02	1230	417	L 1	-	1 3	14	1 4	05 05D	L 0005	L 0005
82-12-06	1315	417	L 1	--	4	10	5	04 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-12	0820	417				L 01	-	L 04	L 02	-
82-02-01	1335	417	-			L 01		L 04	L 02	-
82-03-22	1330	417	-			L 01	-	L 04	L 02	--
82-04-05	1300	417			--	L 01	-	L 04	L 02	--
82-05-03	1240	417		-	--	L 01	-	L 04	L 02	-
82-06-07	1230	417		-	-	L 01	-	L 04	03	--
82-07-05	1230	417		--	-	L 01	-	L 04	L 02	-
82-08-17	1215	417	--		--	L 01	-	L 04	L 02	-
82-09-13	1300	417		-	--	L 01	-	L 04	L 02	-
82-10-04	1245	417	--	--	--	L 01	-	L 04	L 02	-
82-11-02	1230	417	--	--	--	L 01	--	L 04	09	-
82-12-06	1315	417	--	--	--	L 01		L 04	L 02	-

FOOTNOTE L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL07AA0023
ATHABASCA RIVER AT HWY 16 BRIDGE BELOW CONFLUENCE WITH SNARING RIVER LAT 53D 2M 30S LONG 118D 5M 13S JASPER NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-11	1615	417	0	17 5	242	239	8 1	8 0	1	1 5
82-02-01	1600	417	0	21 0	239	233	8 0	7 9	2	1 3
82-03-22	1530	417	1 0	20 4	242	240	8 1	8 0	-	1 0
82-04-05	1500	417	5	20 9	247	240	8 2	8 1	--	1 1
82-05-03	1415	417	4 0	20 6	217	211	8 4	8 2	11 0	5 2
82-06-07	1430	417	7 0	23 1	165	148	8 2	8 1	9 0	5 6
82-07-05	1415	417	6 5	20 7	143	128	8 1	8 1	55 0	30 0
82-08-17	1400	417	10 0	17 5	164	151	8 1	8 1	19 0	15 0
82-09-13	1500	417	7 5	23 2	162	155	7 9	8 1	13 0	14 0
82-10-04	1415	417	5 0	17 3	187	170	8 0	8 1	4 0	3 5
82-11-02	1400	417	5	18 3	208	193	8 2	8 1	3 0	3 2
82-12-06	1500	417	0	16 5	233	214	8 0	8 1	2 8	2 3

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-11	1615	417	5	1	--	001	154	58	14	11 1
82-02-01	1600	417	5	1	-	-	20	20	10	
82-03-22	1530	417	5	91	--	L 001	L2	L2	L2	12 3
82-04-05	1500	417	5	1	-	L 001	L2	L2	L2	11 8
82-05-03	1415	417	5	10	--	002	L2	L2	L2	12 6
82-06-07	1430	417	10	12	--	L 001	4	3	L1	10 9
82-07-05	1415	417	5	57	-	L 001	92	2	12	11 2
82-08-17	1400	417	20	17	-	L 001	42	L2	22	10 0
82-09-13	1500	417	5	20	--	001	80	4	14	10 6
82-10-04	1415	417	10	3	--	L 001	22	L2	4	12 1
82-11-02	1400	417	5	9	--	002	36	L2	L2	14 2
82-12-06	1500	417	5	17	--	001	5	L1	2	11 4

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06301L CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-11	1615	417	0	0	118	96 0	31 90	10 8	124 1	1 4
82-02-01	1600	417	0	0	115	94 0	29 90	10 8	119 1	1 4
82-03-22	1530	417	0	0	116	95 0	30 20	10 7	119 5	1 9
82-04-05	1500	417	0	0	122	100 0	32 50	10 7	125 2	1 0
82-05-03	1415	417	0	0	106	87 0	28 50	9 9	111 9	1 4
82-06-07	1430	417	0	0	84	69 0	22 30	6 8	83 7	8
82-07-05	1415	417	0	0	77	63 0	21 20	5 8	76 8	6
82-08-17	1400	417	0	0	79	65 0	21 80	6 8	82 4	7
82-09-13	1500	417	0	0	82	67 0	23 40	6 8	86 4	9
82-10-04	1415	417	0	0	89	73 0	24 00	7 8	92 0	1 1
82-11-02	1400	417	0	0	101	83 0	25 10	8 3	96 9	2 0
82-12-06	1500	417	0	0	112	92 0	30 80	10 8	121 4	2 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103L POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604P CYANIDE DISSOLVED CN MG/L
82-01-11	1615	417	4	9	09	25	4 3	132	--	001
82-02-01	1600	417	4	9	08	25	4 0	129	--	L 001
82-03-22	1530	417	4	1 3	13	26	4 0	132	--	002
82-04-05	1500	417	4	1 1	06	26	4 0	136	-	001
82-05-03	1415	417	4	1 0	06	22	3 7	119	--	L 001
82-06-07	1430	417	2	4	L 05	12	3 0	87	--	L 001
82-07-05	1415	417	4	.3	L 05	9	2 3	78	--	003
82-08-17	1400	417	3	.3	06	14	2 6	86	--	L 001
82-09-13	1500	417	4	3	L 05	15	2 8	90	-	L 001
82-10-04	1415	417	4	.5	L 05	18	3 1	99		003
82-11-02	1400	417	4	7	10	22	3 6	112	-	L 001
82-12-06	1500	417	4	9	08	28	4 2	132	-	L 001

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL07AA0023 LAT 53D 2M 30S LONG 118D 5M 13S
ATHABASCA RIVER AT HWY 16 BRIDGE BELOW CONFLUENCE WITH SNARING RIVER JASPER NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL. N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-11	1615	417	007	005	L 006	12	15	17	L 01	17
82-02-01	1600	417	009	007	L 006	13	15	14	L 01	14
82-03-22	1530	417	020	009	011	11	12	12	L 01	12
82-04-05	1500	417	020	005	015	11	12	12	L 01	12
82-05-03	1415	417	014	L 003	012	05	08	09	04	13
82-06-07	1430	417	014	L 003	012	07	10	10	L 01	10
82-07-05	1415	417	032	L 003	031	04	07	08	L 01	08
82-08-17	1400	417	020	L 003	018	04	06	06	L 01	06
82-09-13	1500	417	012	L 003	010	04	06	07	L 01	07
82-10-04	1415	417	008	L 003	006	05	07	07	L 01	07
82-11-02	1400	417	008	004	L 006	07	08	08	L 01	08
82-12-06	1500	417	011	005	006	10	10	10	L 01	10

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL. C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-11	1615	417	L 1	--	8	16	1 0	04 05D	L 0005	L 0005
82-02-01	1600	417	L 1	-	1 0	11	1 1	03 05D	L 0005	L 0005
82-03-22	1530	417	L 1	--	6	14	7	03 05D	L 0005	L 0005
82-04-05	1500	417	L 1	--	7	12	8	04 05D	L 0005	L 0005
82-05-03	1415	417	L 1	--	1 4	49	1 9	02 05D	L 0005	L 0005
82-06-07	1430	417	L 1	--	1 8	48	2 3	04 05D	L 0005	L 0005
82-07-05	1415	417	L 1	-	1 5	1 50	3 0	02 05D	L 0005	L 0005
82-08-17	1400	417	L 1	--	7	83	1 5	03 05D	L 0005	L 0005
82-09-13	1500	417	L 1	--	7	71	1 4	1 02 05D	L 0005	L 0005
82-10-04	1415	417	L 1	--	8	21	1 0	02 05D	L 0005	L 0005
82-11-02	1400	417	L 1	-	1 4	35	1 8	03 05D	L 0005	L 0005
82-12-06	1500	417	L 1	-	5	60	1 1	04 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-11	1615	417	-	-	-	L 01	--	L 04	L 02	L 001
82-02-01	1600	417	-	-	-	L 01	--	L 04	L 02	L 001
82-03-22	1530	417	--	--	--	01	--	L 04	L 02	L 001
82-04-05	1500	417	-	-	--	L 01	--	L 04	L 02	L 001
82-05-03	1415	417	--	--	--	L 01	--	L 04	L 02	L 001
82-06-07	1430	417	--	-	--	L 01	--	L 04	L 02	L 001
82-07-05	1415	417	--	--	-	L 01	--	L 04	L 02	002
82-08-17	1400	417	--	-	--	L 01	--	L 04	L 02	L 001
82-09-13	1500	417	--	--	--	L 01	--	L 04	L 02	L 001
82-10-04	1415	417	--	--	--	L 01	--	L 04	L 02	L 001
82-11-02	1400	417	--	--	--	L 01	--	L 04	L 02	L 001
82-12-06	1500	417	--	-	--	L 01	--	L 04	L 02	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	24302P CHROMIUM EXTRBLE CR MG/L	27020P COBALT TOTAL RECOVERABLE CO MG/L	28020P NICKEL TOTAL RECOVERABLE NI MG/L	29020P COPPER TOTAL RECOVERABLE CU MG/L	30020P ZINC TOTAL RECOVERABLE ZN MG/L	48020P CADMIUM TOTAL CD MG/L	56020P BARIUM TOTAL RECOVERABLE BA MG/L	82020P LEAD TOTAL RECOVERABLE PB MG/L
82-01-11	1615	417	--	L 002	L 002	L 001	004	L 001	05	L 004
82-02-01	1600	417	--	--	L 002	--	--	L 001	07	L 004
82-03-22	1530	417	--	L 002	L 002	001	008	L 001	08	L 004
82-04-05	1500	417	--	L 002	L 002	L 001	005	L 001	L 05	L 004
82-05-03	1415	417	--	L 002	L 002	L 001	002	L 001	05	L 004
82-06-07	1430	417	--	L 002	L 002	001	001	L 001	L 05	L 004
82-07-05	1415	417	--	L 002	L 002	001	004	L 001	L 05	L 004
82-08-17	1400	417	--	L 002	L 002	L 001	--	L 001	05	L 004
82-09-13	1500	417	--	L 002	006	001	013	L 001	L 05	L 004
82-10-04	1415	417	-	L 002	--	-	-	L 001	L 05	L 004
82-11-02	1400	417	--	L 002	L 002	L 001	002	L 001	L 05	L 004
82-12-06	1500	417	--	L 002	L 002	L 001	001	L 001	L 05	L 004

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL07AA0023 LAT 53D 2M 30S LONG 118D 5M 13S
ATHABASCA RIVER AT HWY 16 BRIDGE BELOW CONFLUENCE WITH SNARING RIVER, JASPER NATIONAL PARK, ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06535P PHENOLIC MATERIAL PHENOL MG/L	06500P N-ALKANES C10 - C26 UG/L	06510P AROMATIC HYDROC UG/L	17811L HEXACHLORO-BENZENE UG/L	18075L ALPHA-BHC UG/L	18070L GAMMA-BHC (LINDANE) UG/L	18130L ALDRIN UG/L	18010L P,P-TDE UG/L
82-01-11	1615	417	001	--	--	L 001	L 001	L 001	L 001	L 002
82-02-01	1600	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-03-22	1530	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-04-05	1500	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-05-03	1415	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-06-07	1430	417	L 001	--	--	L 001	001	L 001	L 001	L 002
82-07-05	1415	417	001	--	--	L 001	002	L 001	L 001	L 002
82-08-17	1400	417	L 001	--	--	L 001	001	L 001	L 001	L 002
82-09-13	1500	417	L 001	--	--	L 001	002	L 001	L 001	L 002
82-10-04	1415	417	L 001	--	--	L 001	001	L 001	L 001	L 002
82-11-02	1400	417	L 001	--	--	L 001	L 001	L 001	L 001	L 002
82-12-06	1500	417	002	--	--	L 001	L 001	L 001	L 001	L 002

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18020L P,P-DDE UG/L	18005L O,P-DDT UG/L	18000L P,P-DDT UG/L	18030L P,P-METHOXY-CHLOR UG/L	18140L ENDRIN UG/L	18050L ALPHA-ENDOSULFAN UG/L	18055L BETA-ENDOSULFAN UG/L	18040L HEPTACHLOR UG/L
82-01-11	1615	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-02-01	1600	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-03-22	1530	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-04-05	1500	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-05-03	1415	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-06-07	1430	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-07-05	1415	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-08-17	1400	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-09-13	1500	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-10-04	1415	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-11-02	1400	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-12-06	1500	417	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18045L HEPTACHLOR EPOXIDE UG/L	18150L HEOD (DIELDRIN) UG/L	18125L MIREX UG/L	18060L ALPHA-(CIS) CHLORDANE UG/L	18065L GAMMA-(TRANS) CHLORDANE UG/L	18520P MCPA UG/L	18500P 2,4-D UG/L	18550P 2,4-DB UG/L
82-01-11	1615	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-02-01	1600	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-03-22	1530	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-04-05	1500	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-05-03	1415	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-06-07	1430	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-07-05	1415	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-08-17	1400	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-09-13	1500	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-10-04	1415	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-11-02	1400	417	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-12-06	1500	417	L 002	L 0020	L 001	L 003	L 002	--	--	--

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18555P DICHLORPROP UG/L	18510P 2,4,5-T UG/L	18540P FENOPROP (SILVEX) UG/L	18601P PICLORAM UG/L	18159L AROCLOR 1242 (PCB'S) UG/L	18160L AROCLOR 1254 (PCB'S) UG/L	18162L AROCLOR 1260 (PCB'S) UG/L	18164L AROCLOR TOTAL (PCB'S) UG/L
82-01-11	1615	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-02-01	1600	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-03-22	1530	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-04-05	1500	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-05-03	1415	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-06-07	1430	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-07-05	1415	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-08-17	1400	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-09-13	1500	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-10-04	1415	417	L 004	L 002	L 004	2	L 002	L 002	L 005	L 002
82-11-02	1400	417	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-12-06	1500	417	--	--	--	L 2	L 002	L 002	L 005	L 002

FOOTNOTE: L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE

IV

RESULTS FROM

WATERTON NATIONAL PARK

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION 00AL05AD0005 LAT 49D 6M 50S LONG 113D 5CM 20S
WATERTON RIVER AT HWY 6 BRIDGE NEAR WATERTON LAKES NATIONAL PARK, ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT. USIE/CM	02041L SPECIFIC CONDUCT USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-27	1515	3	2 0	19 8	176	179	8 2	8 1	-	7
82-02-18	1430	3	3 5	20 0	171	178	8 1	8 0	-	6
82-03-24	1400	3	3 5	21 0	163	163	8 4	8 0	-	1 0
82-04-28	1400	3	7 5	21 2	178	168	8 2	8 1	2 0	9
82-05-27	1245	3	6 0	19 9	171	154	8 1	8 0	2 8	2 0
82-06-23	1345	3	12 0	23 5	153	141	7 5	8 1	2 4	1 4
82-07-21	1330	3	10 0	24 0	160	137	8 0	8 2	6	6
82-08-11	1130	3	16 0	21 0	153	149	7 9	8 3	-	5
82-09-22	1315	3	11 5	17 7	164	148	8 2	8 3	-	1 8
82-10-21	1345	3	6 0	16 5	172	157	8 1	8 2	-	9
82-11-19	1415	3	0	18 7	173	164	7 9	8 1	1 2	9
82-12-15	1430	3	1 0	7 6		154	7 7	7 7	-	5

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717G CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-27	1515	3	5	L1	--	006	L1	L1	--	12 2
82-02-18	1430	3	5	1	--	007	L1	L1	--	12 8
82-03-24	1400	3	5	1	--	004	L1	L1	--	11 9
82-04-28	1400	3	5	1	--	002	L1	L1	--	10 7
82-05-27	1245	3	5	2	--	004	6	L1	--	10 4
82-06-23	1345	3	L5	2	--	001	L1	L1	--	10 2
82-07-21	1330	3	5	L1	--	002	--	3	--	9 2
82-08-11	1130	3	10	1	--	002	--	23	--	8 2
82-09-22	1315	3	5	L1	--	003	L2	L2	--	9 7
82-10-21	1345	3	L5	1	--	003	L2	L2	--	10 1
82-11-19	1415	3	5	1	--	002	2	L2	--	11 5
82-12-15	1430	3	L5	1	--	004	L2	L2	--	12 2

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06301L CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD.) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD.) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-27	1515	3	0	0	109	89 0	24 00	8 7	95 M	9
82-02-18	1430	3	0	0	105	86 0	24 00	8 5	94 9	7
82-03-24	1400	3	0	0	101	82 0	22 80	8 2	90 7	8
82-04-28	1400	3	0	0	104	85 0	24 50	8 8	97 4	7
82-05-27	1245	3	0	0	99	81 0	22 80	7 9	89 5	1 2
82-06-23	1345	3	0	0	88	72 0	20 20	6 9	78 9	6
82-07-21	1330	3	0	0	89	73 0	19 20	6 5	74 7	6
82-08-11	1130	3	0	0	88	72 0	20 10	6 9	78 6	7
82-09-22	1315	3	0	0	96	79 0	22 20	7 8	87 5	9
82-10-21	1345	3	0	0	101	83 0	23 00	7 7	89 1	1 1
82-11-19	1415	3	0	0	105	86 0	24 00	8 3	94 1	1 0
82-12-15	1430	3	0	0	101	83 0	21 60	7 8	86 1	1 0

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103F POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD.) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604P CYANIDE DISSOLVED CN MG/L
82-01-27	1515	3	.3	3	07	4	1 3	93	-	002
82-02-18	1430	3	.2	3	L 05	5	1 6	92	--	L 001
82-03-24	1400	3	.2	3	07	4	1 6	88	--	003
82-04-28	1400	3	.2	3	L 05	5	2 1	92	-	L 001
82-05-27	1245	3	4	3	L 05	5	2 8	89	--	001
82-06-23	1345	3	.2	3	L 05	5	3 2	80	--	001
82-07-21	1330	3	.2	.2	L 05	4	3 0	78	--	002
82-08-11	1130	3	2	3	L 05	4	2 9	78	--	002
82-09-22	1315	3	1	3	L 05	5	1 8	85	-	002
82-10-21	1345	3	.3	.3	11	5	1 6	88	-	001
82-11-19	1415	3	.3	3	06	5	1 6	92	-	L 001
82-12-15	1430	3	.3	4	L 05	5	1 6	87	--	L 001

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05AD0005 LAT 49D 6M 50S LONG 113D 50M 20S
WATERTON RIVER AT HWY 6 BRIDGE NEAR WATERTON LAKES NATIONAL PARK, ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-27	1515	3	L 003	L 003	L 006	03	06	06	L 01	06
82-02-18	1430	3	003	L 003	L 006	03	06	07	05	12
82-03-24	1400	3	011	003	008	04	07	--	L 01	Q 08
82-04-28	1400	3	L 003	L 003	L 006	08	08	08	05	13
82-05-27	1245	3	003	L 003	L 006	08	13	12	L 01	12
82-06-23	1345	3	L 003	L 003	L 006	13	16	17	L 01	17
82-07-21	1330	3	005	L 003	L 006	12	14	14	L 01	14
82-08-11	1130	3	003	L 003	L 006	09	11	12	L 01	12
82-09-22	1315	3	L 003	L 003	L 006	04	07	08	L 01	08
82-10-21	1345	3	007	005	L 006	03	06	06	L 01	06
82-11-19	1415	3	004	003	L 006	03	08	08	L 01	08
82-12-15	1430	3	005	L 003	L 006	04	09	09	L 01	09

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506D NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) C MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-27	1515	3	L 1	-	1 1	21	1 3	L 02 05D	L 0005	L 0005
82-02-18	1430	3	L 1	-	1 2	33	1 5	02 05D	L 0005	L 0005
82-03-24	1400	3	L 1	-	9	25	1 2	03 05D	L 0005	L 0005
82-04-28	1400	3	L 1	-	1 0	28	1 3	02 05D	L 0005	L 0005
82-05-27	1245	3	L 1	-	1 5	25	1 8	03 05D	L 0005	L 0005
82-06-23	1345	3	L 1	--	1 3	27	1 6	03 05D	L 0005	L 0005
82-07-21	1330	3	L 1	-	8	19	1 0	03 05D	L 0005	L 0005
82-08-11	1130	3	L 1	--	1 0	18	1 2	04 05D	L 0005	L 0005
82-09-22	1315	3	L 1	--	8	14	9	02 05D	L 0005	L 0005
82-10-21	1345	3	L 1	-	1 0	25	1 3	02 05D	L 0005	L 0005
82-11-19	1415	3	L 1	-	1 0	25	1 3	03 05D	L 0005	L 0005
82-12-15	1430	3	L 1	-	1 1	20	1 5	05 05D	L 0005	L 0005

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-27	1515	3				L 01	-	L 04	L 02	L 001
82-02-18	1430	3		-	-	L 01	--	L 04	L 02	L 001
82-03-24	1400	3		-	-	L 01	--	L 04	L 02	L 001
82-04-28	1400	3		-	-	L 01	--	L 04	L 02	L 001
82-05-27	1245	3		-	-	L 01		L 04	L 02	L 001
82-06-23	1345	3		-	-	L 01	-	L 04	L 02	L 001
82-07-21	1330	3		-	-	L 01	-	L 04	L 02	L 001
82-08-11	1130	3		-	-	L 01	--	L 04	L 02	L 001
82-09-22	1315	3	--	-	-	L 01	-	L 04	L 02	L 001
82-10-21	1345	3	--	-	--	L 01	--	L 04	-	L 001
82-11-19	1415	3		-	--	L 01	-	L 04	L 02	L 001
82-12-15	1430	3	-	--		L 01	--	L 04	L 02	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	24302P CHROMIUM EXTRBLE CR MG/L	27020P COBALT TOTAL RECOVERABLE CO MG/L	28020P NICKEL TOTAL RECOVERABLE NI MG/L	29020P COPPER TOTAL RECOVERABLE CU MG/L	30020P ZINC TOTAL RECOVERABLE ZN MG/L	48020P CADMIUM TOTAL RECOVERABLE CD MG/L	56020P BARIUM TOTAL RECOVERABLE BA MG/L	82020P LEAD TOTAL RECOVERABLE PB MG/L
82-01-27	1515	3	--	-	L 002	--	-	L 001	12	L 004
82-02-18	1430	3	--	L 002	L 002	002	003	L 001	10	L 004
82-03-24	1400	3	--	L 002	L 002	L 001	011	L 001	12	L 004
82-04-28	1400	3	--	L 002	L 002	011	L 001	L 001	08	L 004
82-05-27	1245	3	--	L 002	L 002	L 001	001	L 001	10	L 004
82-06-23	1345	3	--	L 002	L 002	001	L 001	003	10	L 004
82-07-21	1330	3	--	L 002	002	001	--	001	08	L 004
82-08-11	1130	3	--	L 002	L 002	L 001	002	L 001	12	L 004
82-09-22	1315	3	--	L 002	L 002	L 001	L 001	L 001	11	L 004
82-10-21	1345	3		L 002	L 002	L 001	L 001	L 001	07	L 004
82-11-19	1415	3	--	L 002	L 002	L 001	L 001	L 001	10	L 004
82-12-15	1430	3	--	002	002	L 001	001	L 001	10	L 004

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05AD0005 LAT 49D 6M 50S LONG 113D 50M 20S
WATERTON RIVER AT HWY 6 BRIDGE NEAR WATERTON LAKES NATIONAL PARK ALBERTA

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06535P PHENOLIC MATERIAL PHENOL MG/L	06500P N-ALKANES C10 - C26 UG/L	06510P AROMATIC HYDROC UG/L	17811L HEXACHLORO-BENZENE UG/L	18075L ALPHA-BHC UG/L	18070L GAMMA-BHC (LINDANE) UG/L	18130L ALDRIN UG/L	18010L P,P-TDE UG/L
82-01-27	1515	3	L 001	--	--	L 001	006	L 001	L 001	L 002
82-02-18	1430	3	001	--	--	L 001	010	L 001	L 001	L 002
82-03-24	1400	3	L 001	--	--	L 001	008	L 001	L 001	L 002
82-04-28	1400	3	L 001	--	--	L 001	002	L 001	L 001	L 002
82-05-27	1245	3	L 001	--	--	L 001	005	L 001	L 001	L 002
82-06-23	1345	3	L 001	--	--	L 001	004	L 001	L 001	L 002
82-07-21	1330	3	001	--	--	L 001	002	L 001	L 001	L 002
82-08-11	1130	3	001	--	--	L 001	006	L 001	L 001	L 002
82-09-22	1315	3	001	--	--	L 001	009	L 001	L 001	L 002
82-10-21	1245	3	002	--	--	L 001	004	L 001	L 001	L 002
82-11-19	1415	3	002	--	--	L 001	004	L 001	L 001	L 002
82-12-15	1430	3	L 001	--	--	L 001	006	002	L 001	L 002

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18020I P,P-DDE UG/L	18005L O,P-DDT UG/L	18000I P,P-DDT UG/L	18030I P,P-METHOXY-CHLOR UG/L	18140I ENDRIN UG/L	18050I ALPHA-ENDOSULFAN UG/L	18055L BETA-ENDOSULFAN UG/L	18040L HEPTACHLOR UG/L
82-01-27	1515	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-02-18	1430	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-03-24	1400	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-04-28	1400	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-05-27	1245	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-06-23	1345	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-07-21	1330	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-08-11	1130	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-09-22	1315	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-10-21	1345	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-11-19	1415	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001
82-12-15	1430	3	L 001	L 001	L 004	L 01	L 0020	L 001	L 003	L 001

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18045I HEPTACHLOR EPOXIDE UG/L	18150L HEOD (DIELDRIN) UG/L	18125L MIREX UG/L	18060I ALPHA-(CIS) CHLORDANE UG/L	18065L GAMMA-(TRANS) CHLORDANE UG/L	18520P MCPA UG/L	18500P 2,4-D UG/L	18550P 2,4-DB UG/L
82-01-27	1515	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-02-18	1430	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-03-24	1400	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-04-28	1400	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-05-27	1245	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-06-23	1345	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-07-21	1330	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-08-11	1130	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-09-22	1315	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-10-21	1345	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-11-19	1415	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009
82-12-15	1430	3	L 002	L 0020	L 001	L 003	L 002	L 2	L 004	L 009

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	18555P DICHLORPROP UG/L	18510P 2,4,5-T UG/L	18540P FENOPROP (SILVEX) UG/L	18601P PICLORAM UG/L	18159L AROCLOR 1242 (PCB'S) UG/L	18160I AROCLOR 1254 (PCB'S) UG/L	18162L AROCLOR 1260 (PCB'S) UG/L	18164I AROCLOR TOTAL (PCB'S) UG/L
82-01-27	1515	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-02-18	1430	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-03-24	1400	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-04-28	1400	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-05-27	1245	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-06-23	1345	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-07-21	1330	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-08-11	1130	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-09-22	1315	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-10-21	1345	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-11-19	1415	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002
82-12-15	1430	3	L 004	L 002	L 004	L 2	L 002	L 002	L 005	L 002

FOOTNOTE: L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN: L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION 00AL05AD0080
BELLY RIVER AT HWY 6 WATERTON LAKES NATIONAL PARK, ALBERTA
LAT 49D 3M 8S LONG 113D 41M 7S

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02061F TEMP WATER DEG C	02061L TEMP WATER DEG C	02041F SPECIFIC CONDUCT USIE/CM	02041L SPECIFIC CONDUCT. USIE/CM	10301F PH PH UNITS	10301L PH PH UNITS	02073F TURBIDITY JTU	02073L TURBIDITY JTU
82-01-27	1400	3	2 0	18 9	216	226	8 0	7 9	--	8
82-02-18	1315	3	2 5	20 0	194	200	--	7 9	-	8
82-03-24	1315	3	2 0	21 0	221	224	8 3	8 0	-	6
82-04-28	1230	3	5 0	19 5	271	255	8 0	7 9	2 0	1 6
82-05-27	1130	3	4 0	20 2	159	148	8 0	7 9	18 0	8 4
82-06-23	1230	3	8 0	23 2	146	134	7 6	7 9	15 0	8 5
82-07-21	1230	3	13 0	23 4	167	141	7 7	8 1	2 0	1 1
82-08-11	1030	3	13 0	20 5	150	148	7 7	8 1	--	7
82-09-22	1100	3	11 0	17 7	243	227	8 4	8 2	--	1 3
82-10-21	1230	3	7 0	16 8	--	201	8 2	8 2		3
82-11-19	1300	3	0	18 8	206	192	7 9	8 1	1 8	7
82-12-15	1215	3	1 0	7 3	--	199	8 1	7 9	1 4	5

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	02021L COLOUR TRUE REL UNITS	10401L RESIDUE NONFILTR MG/L	10501L RESIDUE FIXED NONFILTR MG/L	06717L CHLORO-PHYLL A MG/L	36002F COLIFORMS TOTAL MF NO/DL	36012F COLIFORMS FECAL MF NO/DL	36103F FECAL STREP MF NO/DL	08101W OXYGEN DISSOLVED DO O2 MG/L
82-01-27	1400	3	5	L1	--	001	L1	L1	--	11 4
82-02-18	1315	3	5	2	-	001	1	1	--	12 4
82-03-24	1315	3	5	1	--	L 001	L1	L1	--	11 8
82-04-28	1230	3	5	2	-	L 001	1	L1	-	10 5
82-05-27	1130	3	5	20	-	001	6	6	--	11 0
82-06-23	1230	3	5	19	-	003	8	6	-	10 9
82-07-21	1230	3	5	2	--	001	--	6	--	9 0
82-08-11	1030	3	10	2	--	L 001	--	5		8 5
82-09-22	1100	3	5	L1 01R	-	L 001 177	L2 02D	L1 12D	--	9 7
82-10-21	1230	3	15	L1	--	001	L2	L2		9 9
82-11-19	1300	3	5	2	--	001	L2	L2	-	12 3
82-12-15	1215	3	15	L1	-	L 001	L2	L2		11 9

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	06301I CARBONATE (CALCD.) CO3 MG/L	10151L ALKALINITY PHENOL PHTHALEIN CACO3 MG/L	06201L BICARBONT (CALCD.) HCO3 MG/L	10101L ALKALINITY TOTAL CACO3 MG/L	20103L CALCIUM DISSOLVED CA MG/L	12102L MAGNESIUM DISSOLVED MG MG/L	10602L HARDNESS TOTAL (CALCD.) CACO3 MG/L	11103L SODIUM DISSOLVED NA MG/L
82-01-27	1400	3	0	0	134	110 0	27 20	12 2	118 2	1 4
82-02-18	1315	3	0	0	121	99 0	26 00	10 7	100 0	1 1
82-03-24	1315	3	0	0	134	110 0	28 90	12 7	124 5	1 4
82-04-28	1230	3	0	0	152	125 0	34 10	14 0	142 8	1 6
82-05-27	1130	3	0	0	91	75 0	20 30	7 9	81 2	1 8
82-06-23	1230	3	0	0	84	69 0	18 10	6 9	73 6	7
82-07-21	1230	3	0	0	94	77 0	18 90	7 8	79 3	8
82-08-11	1030	3	0	0	93	76 0	20 10	7 8	82 7	7
82-09-22	1100	3	0	0	143	117 0	31 40	12 3	133 2	1 5
82-10-21	1230	3	0	0	128	105 0	28 00	11 4	116 9	1 3
82-11-19	1300	3	0	0	128	105 0	26 90	11 1	112 9	1 5
82-12-15	1215	3	0	0	138	113 0	26 60	11 8	115 0	1 1

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	19103L POTASSIUM DISSOLVED K MG/L	17206L CHLORIDE DISSOLVED CL MG/L	09105L FLUORIDE DISSOLVED F MG/L	16306L SULPHATE DISSOLVED SO4 MG/L	14105L SILICA REACTIVE SIO2 MG/L	00201L TOTAL DISSOLVED SOLIDS (CALCD.) MG/L	16104P SULFIDE DISSOLVED S MG/L	06604F CYANIDE DISSOLVED CN MG/L
82-01-27	1400	3	3	3	09	7	3 4	118		--
82-02-18	1315	3	3	3	L 05	7	3 4	108	-	--
82-03-24	1315	3	3	3	L 05	8	3 6	121	--	--
82-04-28	1230	3	3	3	08	12	3 8	141	-	-
82-05-27	1130	3	4	2	L 05	5	3 8	84	--	--
82-06-23	1230	3	2	2	L 05	5	3 0	76	-	-
82-07-21	1230	3	3	2	L 05	4	3 0	81	-	--
82-08-11	1030	3	2	3	L 05	4	2 8	81	-	-
82-09-22	1100	3	3	4	06	12	3 6	133	--	--
82-10-21	1230	3	3	2	08	9	3 2	117	-	-
82-11-19	1300	3	3	3	08	7	3 2	114	--	--
82-12-15	1215	3	3	3	L 05	7	3 4	119	--	--

DETAILED WATER QUALITY DATA 1982
ALBERTA

STATION - 00AL05AG0060
BELLY RIVER AT HWY 6, WATERTON LAKES NATIONAL PARK ALBERTA LAT 49D 3M 6S LONG 113D 41M 7S

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	15406L PHOSPHORUS TOTAL P MG/L	15103D PHOSPHORUS TOTAL DISSOLVED P MG/L	15901L PHOSPHORUS PARTICULATE (CALCD.) P MG/L	07110D NITROGEN DISSOLVED NO3 & NO2 N MG/L	07651D NITROGEN DISSOLVED N MG/L	07651L NITROGEN DISSOLVED N MG/L	07902L NITROGEN PARTICUL N MG/L	07603L NITROGEN TOTAL (CALCD.) N MG/L
82-01-27	1400	3	L 003	L 003	L 006	11	12	13	L 01	13
82-02-18	1315	3	003	L 003	L 006	10	16	17	L 01	13
82-03-24	1315	3	L 003	L 003	L 006	12	12	12	L 01	12
82-04-28	1230	3	006	L 003	L 006	13	12	13	L 01	13
82-05-27	1130	3	016	L 003	014	11	14	14	06	20
82-06-23	1230	3	013	L 003	011	14	15	16	05	21
82-07-21	1230	3	007	L 003	L 006	12	14	14	L 01	14
82-08-11	1030	3	003	L 003	L 006	10	11	11	L 01	11
82-09-22	1100	3	L 003 06R	L 003 03V	L 006 01R	10 10V	11 51V	11 51R	L 01 02R	
82-10-21	1230	3	007	L 003	L 006	09	10	10	L 01	10
82-11-19	1300	3	003	003	L 006	09	11	10	L 01	10
82-12-15	1215	3	003	L 003	L 006	10	14	14	L 01	14

DATE YMD/AMJ	TIME/ HEURE	SUB-ID/ SOUS-ID	07506P NITROGEN TOTAL AMMONIA N MG/L	15256D PHOSPHORUS DISSOLVED ORTHO PO4 P MG/L	06104L CARBON DISSOLVED ORGANIC C MG/L	06902L CARBON ORGANIC PARTICUL C MG/L	06002L CARBON TOTAL ORGANIC (CALCD.) MG/L	05105L BORON DISSOLVED B MG/L	33104D ARSENIC DISSOLVED AS MG/L	34102D SELENIUM DISSOLVED SE MG/L
82-01-27	1400	3	L 1	--	1 3	04	1 3	03 05D	L 0005	L 0005
82-02-18	1315	3	L 1	-	1 1	17	1 2	04 05D	L 0005	L 0005
82-03-24	1315	3	L 1	--	8	10	9	12 05D	L 0005	L 0005
82-04-28	1230	3	L 1	--	1 0	13	1 1	03 05D	L 0005	L 0005
82-05-27	1130	3	L 1	--	1 1	66	1 8	03 05D	L 0005	L 0005
82-06-23	1230	3	L 1	-	1 0	60	1 6	05 05D	L 0005	L 0005
82-07-21	1230	3	L 1	--	8	17	1 0	03 05D	L 0005	L 0005
82-08-11	1030	3	L 1	-	7	13	8	05 05D	L 0005	L 0005
82-09-22	1100	3	L 1 06H	--	6 04R	04 02R	6	03 05V	L 0005 04V	L 0005 02V
82-10-21	1230	3	L 1	-	1 2	58	1 8	03 05D	L 0005	L 0005
82-11-19	1300	3	L 1	-	6	15	8	03 05D	L 0005	L 0005
82-12-15	1215	3	L 1	-	6	05	7	05 05D	L 0005	L 0005

DATE YMD/AMJ	TIME HEURE	SUB-ID/ SOUS-ID	13302P ALUMINUM EXTRBLE AL MG/L	47301P SILVER EXTRBLE AG MG/L	25304P MANGANESE EXTRBLE MN MG/L	25104G MANGANESE DISSOLVED MN MG/L	26304P IRON EXTRBLE FE MG/L	26104G IRON DISSOLVED FE MG/L	80011P MERCURY TOTAL HG UG/L	23020P VANADIUM TOTAL RECOVERABLE VA MG/L
82-01-27	1400	3				L 01		L 04	L 02	
82-02-18	1315	3		-		L 01	-	L 04	L 02	--
82-03-24	1315	3				L 01	-	L 04	L 02	--
82-04-28	1230	3			--	L 01		L 04	L 02	-
82-05-27	1130	3			--	L 01		L 04	L 02	-
82-06-23	1230	3	--	-	-	L 01		L 04	L 02	--
82-07-21	1230	3	-		-	L 01		L 04	L 02	--
82-08-11	1030	3	-	-		L 01	-	L 04	L 02	-
82-09-22	1100	3		--	-	L 01 04I		L 04 04I	L 02 11H	--
82-10-21	1230	3	-	--	--	L 01	--	L 04	L 02	--
82-11-19	1300	3	-	--	-	L 01	--	L 04	L 02	--
82-12-15	1215	3	-	-	--	L 01	--	L 04	L 02	--

FOOTNOTE L - LESS THAN DETECTION LIMIT G - GREATER THAN MEASUREMENT LIMIT
NOTEZ BIEN L - PLUS PETIT QUE LA LIMITE DE DETECTION G - PLUS GRAND QUE LA LIMITE MESURE